

CONFIDENCE OUTCOMES CATALYST
ALLIANCES COLLABORATION

AGILITY **JOSLIN** IMPACT
INGENUITY

CAPACITY **INNOVATION** JENSEN
GLOBAL ACCELERATION BIG DATA



TRANSLATIONAL DIGITAL

- 2 Partnering for impact
- 4 Solutions for the nation
- 6 Innovative medicine
- 8 Big data
- 10 Accelerating progress
- 12 Digital healthcare
- 14 Empowering stakeholders
- 16 Solutions for the world
- 18 Discovery cycle



Joslin Diabetes Center

Joslin Diabetes Center is the world's preeminent diabetes research and clinical care organization. Joslin is dedicated to ensuring that people with diabetes live long, healthy lives and offers real hope and progress toward diabetes prevention and a cure. Founded in 1898 by Elliott P. Joslin, M.D., Joslin is an independent, nonprofit institution academically affiliated with Harvard Medical School.

www.joslin.org

Joslin Innovation is produced by the Communications Department at Joslin Diabetes Center.

DIRECTOR
Jeffrey Bright

WRITER & EDITOR
Christine Paul

DESIGN
Richard Chiarella, Innovative Resource Group

PHOTOGRAPHY
John Soares
Stephanie M. McPherson
Arthur Pollock





Call to Action

Imagine coupling the **expertise** of the world's preeminent diabetes center with the **energy** of a start-up business. At Joslin Diabetes Center, we are leveraging our 116-year record of **discovery and care** with an all-out effort to shape new medical **innovations** and global health **solutions**. We are witnessing a worldwide diabetes pandemic, driven by genetic risks, poor lifestyle choices, and inadequate awareness, education and care. We cannot stand by, allowing this human devastation and economic pain to continue. As is our **longstanding privilege**, Joslin wears the mantle of leadership—to be the international **catalyst for change**—searching for new ways to prevent, treat and cure diabetes. In our labs, clinics, offices and boardroom, we are **connecting the power** of big data, outcomes research, molecular biology, digital communications and lifestyle medicine. In the nation and world, we are **exporting creative solutions** to help healthcare practitioners everywhere expand their skills and **reach more people**. To accelerate new diabetes therapies, we are forging **entrepreneurial partnerships** with industry. It is a vibrant time at Joslin. We invite you to join this unparalleled call to action.

John L. Brooks III

PRESIDENT AND CHIEF EXECUTIVE OFFICER
JOSLIN DIABETES CENTER

Partnering

Joslin is teaming up with pharmaceutical, medical device, food and software companies to convert discovery into action. Together, we are pursuing an ocean of ideas, creating new treatments and solutions.

Why partner?



“At Joslin, we have a strategic business model — we discover, they apply and everyone gains.”

— Dr. Nandan Padukone

Innovation alliances

“Joslin is the world’s preeminent institution dedicated to building a future without diabetes and its complications, but we can’t do it alone,” says Nandan Padukone, Ph.D., M.B.A., who heads Global Business Development and Ventures at Joslin. “To have a major impact, we are creating business relationships that will expand our expertise and reach.” Now in Joslin’s portfolio are more than 25 formal partnerships with pharmaceutical, medical device, food and software companies, focused on getting new products and services into the pipeline and out the door to patients. Many are springing from Joslin findings that are ready for “spin-out.” Others are emerging from a unique accelerator called Genesis Biosciences. “This is start-up central—an initiative in which internal and external scientists work together, sharing a wealth of ideas,” says Dr. Padukone. “In that ocean, we determine where we’re going to swim, guiding our partners to address key problems and accelerate new products and services into the marketplace.”

for Impact



Simplifying nutrition

Six years ago, when Elle Shaheen (*center*) was new to making food choices as a way to help manage her type 1 diabetes, she exclaimed, “Mom, why does this have to be so hard?” Her mother, Stefany Shaheen (*left*), stepped up to address the challenge. Together with George Bennett, Ph.D., the pair launched Good Measures. Working with a Joslin team, led by Catherine Carver, M.S., A.N.P., C.D.E., Vice President of Clinical Innovation, Good Measures incorporated Joslin’s nutritional guidelines, meal plans and exercise recommendations into a state-of-the-art digital platform. By combining this technology with the know-how of registered dietitian nutritionists and certified diabetes educators, including Amanda Kirpich, R.D., M.A., C.S.S.D., L.D.N., C.D.E. (*right*), Good Measures and Joslin can now provide

patients with real-time support via phone, e-mail or even in person. Steeped in Joslin’s nutritional guidelines, dietitians are helping patients better manage eating and exercise habits to achieve better health. When on the go and trying to juggle personal preferences, nutritional needs and medical conditions, people have support where and when they need it—at the grocery store, work, school or in a restaurant. Elle, now 15 and still receiving her care at Joslin, is benefitting from this breakthrough approach every day. She is working with a registered dietitian periodically and refers to her Good Measures smartphone app several times daily. “It takes out the guesswork,” she says. “I can mix and match meals, and track my food choices. It’s given me a lot of confidence.”

Off to a good start

“The risk of developing type 2 diabetes can be handed down to babies in ways not based simply on copying the parents’ DNA,” says Joslin scientist Mary-Elizabeth Patti, M.D. “A pregnant woman with poor nutrition or other health issues such as a poorly functioning placenta or cigarette smoking is at risk for giving birth to a low-birth-weight infant. These babies go through a catch-up growth period, so that their body weight is normalized. Shortly thereafter, we can see elevated glucose levels, reduced muscle mass and an increase in fat tissue. Later in life, these problems often lead to obesity and type 2 diabetes.” The father’s health also is key. If he has poor metabolism, it can change how the sperm’s double strand of DNA is unwound and read, affecting the baby’s embryonic development and risk of obesity. “There’s an important public health message here about parental nutrition and fitness,” Dr. Patti says. “We know that obesity begets obesity. If you are planning to become pregnant, you and your partner really want to try to improve your health as much as possible before the pregnancy, so your developing baby is exposed to a healthy metabolic environment.” In the lab, she is working to identify and reprogram the molecular signals involved in order to identify potential drug therapies to interrupt vicious cycles of risk for diabetes.

